CLAIMS

What is claimed is:

1. A tool for cleaning the surface of a workpiece, the tool being able to accomplish the following steps:

position a workpiece with respect to a flame torch;

inject a reactive precursor into the flame torch;

translate at least one of the workpiece and the flame torch; and

use reactive atom plasma processing to clean the surface of the workpiece with the flame torch.

2. A tool for shaping the surface of a workpiece, comprising:

means for positioning a workpiece with respect to a flame torch;

means for injecting a reactive precursor into the flame torch;

means for translating at least one of the workpiece and the flame torch; and

means for using reactive atom plasma processing to clean the surface of the workpiece with the flame torch.

3. A tool for cleaning the surface of a workpiece, comprising:

a flame torch; and

a translator that can translate at least one of a workpiece and said torch;

wherein said torch is configured to receive a reactive precursor capable of chemically combining with a contaminant on the surface of the workpiece to produce a gas and leave the surface.

4. A tool according to claim 3, wherein:

said flame torch is adapted to generate a hydrogen-oxygen flame.

5. A tool according to claim 3, wherein:

said flame torch is adapted to produce a stream of atomic radicals that can be used to modify a surface.

6. A tool according to claim 5, wherein:

said flame torch produces a stream that can modify a surface by a process selected from the group consisting of cleaning, passivating, and activating.

7. A tool according to claim 6, wherein:

said flame torch is further adapted to produce a stream of atomic radicals that can modify a surface by a process selected from the group consisting of shaping, polishing, etching, planarizing, and redepositing.

8. A tool according to claim 3, further comprising:

a flame suppressor in said flame torch.

9. A tool according to claim 3, wherein:

said flame torch includes at least one tube to receive process gas.

10. A tool according to claim 9, wherein:

said flame torch includes at least one tube to receive process gas selected from the group consisting of oxygen and hydrogen.

11. A tool according to claim 3, wherein:

said flame torch has a central tube for receiving a reactive precursor.

12. A tool according to claim 11, wherein:

said flame torch has a central tube for receiving a reactive precursor selected from the group consisting of CF_4, O_2, Cl and NH_3.

13. A tool according to claim 3, wherein:

said flame torch has a chemically inert metal tip.

14. A tool according to claim 3, wherein:

said translator is a rotational stage for supporting the workpiece and rotating the workpiece with respect to the flame torch.